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| 10/684,033 | 10/09/2003 | W. Bruce Culbertson | 200315392-1 | 3187 |

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| EXAMINER | |
|---|---|
| JEAN, FRANTZ B | |

| ART UNIT | PAPER NUMBER |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/684,033 | CULBERTSON ET AL. | |
| | Examiner | Art Unit | |
| | Frantz B. Jean | 2151 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *09 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

This is a first office action in response to application filed on 10/09/03. Claims 1-40 are presented for examination.

### *Specification*

The disclosure is objected to because of the following informalities:

Related US application cited in line 5 of the specification needs to be updated to add the current status of US application 10/176,494.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9, 15-33, and 39-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Boulanger et al. ("Boulanger") US patent number 6,583,808.

As per claims 1, 16 and 25, Boulanger teaches a method, computer-readable medium for clustering data in a virtual environment (col. 3 lines 33-45), comprising: determining a cluster of receiving nodes in said virtual environment (col. 3 lines 46-58), wherein each of said cluster of receiving nodes have associated values for at least one

clustering parameter that as a set satisfies a test (col. 1 line 65 to col. 2 line 4; col. 2 lines 7-25); generating a common data stream based on said at least one clustering parameter (col. 5 lines 39-64); and sending said common data stream from a sending node to said cluster of receiving nodes (see fig 2-4; col. 5 line 39 to col. 6 line 9).

As per claims 2 and 26, Boulanger teaches the method of claim 1, wherein said generating a common data stream further comprises: generating a common video image stream as said common data stream of an object associated with said sending node using a new view synthesis technique, wherein said common video image stream is rendered from a common perspective in said virtual environment that is associated with said cluster of receiving nodes (col. 1 lines 29-50; synthesizing view; and col. 4 line 64 to col. 5 line 4).

As per claims 3 and 27, Boulanger teaches a method of claim 2, wherein said common perspective is calculated from an average of said at least one clustering parameter (col. 3 line 18-31).

As per claims 4 and 28, Boulanger teaches a method of claim 2, further comprising: generating a three-dimensional model of said object to which said new view synthesis technique is applied to generate said common video image stream (col. 1 lines 36-50; col. 3 lines 18-41).

As per claims 5 and 29, Boulanger teaches the method of claim 1, wherein data streams associated with said cluster of receiving nodes are substantially similar (col. 6 lines 53-62; col. 5 lines 39-64).

As per claims 6 and 30, Boulanger teaches the method of claim 1, wherein said sending said common data stream further comprises: multicasting said common data stream from said sending node over a communication network to said cluster of receiving nodes to achieve communication network traffic efficiency (the data are multicasted or transferred among the participants col. 5 lines 39-64; col. 2 lines 26-40).

As per claims 7, 17 and 31, Boulanger teaches the method of claim 1, wherein said at least one clustering parameter comprises a view dependent clustering parameter that defines an associated perspective of a receiving node within said virtual environment, wherein each of said cluster of receiving nodes is spatially located in said virtual environment, such that their respective perspectives are similar resulting in said clustering parameter that is shared (col. 4 line 64 to col. 5 line 4; col. 1 lines 23-25).

As per claims 8, 18 and 32, Boulanger teaches a method of claim 1, wherein said at least one clustering parameter comprises a temporal clustering parameter, wherein each of said cluster of receiving nodes require substantially the same frame rate, such that their respective data quality requirements are similar (temporal clustering parameter is inherent in Boulanger because Boulanger discloses motion vector and

pattern movement since more camera are provided around the participant, therefore more freedom of movement within the virtual space is permitted col. 3 lines 62-67).

As per claims 9, 20 and 33, Boulanger teaches a method of claim 1, wherein said at least one clustering parameter comprises a spatial clustering parameter, wherein each of said cluster of receiving nodes require substantially the same resolution parameter value, such that their respective data resolution requirements are similar (col. 4 line 64 to col. 5 line 4; col. 1 lines 23-25).

As per claims 15 and 39, Boulanger teaches the method of claim 1, wherein said determining a cluster of receiving nodes further comprises: dynamically changing said test (col. 1 line 65 to col. 2 line 4; col. 2 lines 7-25) for determining said cluster of receiving nodes in said virtual environment in response to changing conditions for computational resources in a communication network supporting said virtual environment and said cluster of receiving nodes (col. 6 lines 10-40; col. 5 lines 19-26).

As per claim 19, Boulanger teaches wherein said frame rate is increased as said cluster of receiving nodes is located closer to said sending node in said virtual environment (col 3 lines 59-67; col. 4 lines 27-46).

As per claim 21, Boulanger teaches wherein said resolution is dependent on a value of importance said sending node is to a receiving node, such that higher values of

importance are associated with higher resolution (col. 1 lines 20-50).

As per claim 22, Boulanger teaches the system of claim 16, wherein said virtual environment comprises an N-way virtual collaborative environment (col. 3 lines 18-45).

As per claims 40, Boulanger teaches a computer system comprising: a processor (222); and a computer readable memory coupled to said processor and containing program instructions that, when executed, implements a method for clustering data, comprising: determining a cluster of receiving nodes among a plurality of receiving nodes (col. 5 lines 32-38), wherein a plurality of varying data streams are generated by a sending node for all of said plurality of receiving nodes depending on an associated value of a parameter for all of said plurality of receiving nodes (col. 5 lines 39-64), and wherein each of said cluster of receiving nodes have associated values for said parameter that as a set satisfies a test such that data streams associated with said cluster of receiving nodes are substantially similar (col. 6 lines 53-62; col. 5 lines 39-64); generating a common data stream of a sending object associated with said sending node based on a representative value of said parameter (col. 5 lines 39-64); and sending said common data stream to said cluster of receiving nodes (see fig 2-4; col. 5 line 39 to col. 6 line 9).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-14, 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boulanger in view of Elbaz et al. ("Elbaz") US patent number 6,757,005

As per claim 10-11 and 34-35, Boulanger discloses all the limitation of the claims except the steps of limiting resolution, increasing resolution parameter and decreasing resolution parameter. Those features are well known in the art multimedia and videoconference as evidenced by Elbaz col. 5 lines 34-51 and col. 5 line 65 to col. 6 line 4). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Elbaz resolution parameter with Boulanger's videoconferencing feature to facilitate bit-rate modification between original stream and output stream. One skill artisan at the time of the invention would be motivated to do so to achieve rate matching modification and to facilitate encoding of video signal (Elbaz col. 1 lines 44-60).

As per claims 12 and 36, Boulanger-Elbaz teaches the method of claim 11, further comprising: valuing an importance of said sending node based on whether a receiving node is gazing at a representation of said sending node in said virtual environment (col. 3 lines 46-67).

As per claims 13 and 37, Boulanger teaches the method of claim 11, further comprising: valuing an importance of said sending node based on how close to a center of a monitoring device associated with said receiving node is a representation of said

sending node displayed (col. 2 lines 41-55; col. 4 lines 48-63; col. 5 lines 5-18).

As per claims 14 and 38, Boulanger teaches the method of claim 11, further comprising: valuing an importance of said sending node based on whether said sending node is speaking (col. 4 lines 1-6).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frantz B. Jean whose telephone number is 571-272-3937. The examiner can normally be reached on 8:30-6:00 M-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571 272 3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**FRANTZ B. JEAN**
**PRIMARY EXAMINER**